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The Botanical Garden at Rio de Janeiro

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Amid a setting of unparalled grandeur the Botanical Garden at Rio de Janeiro contains one of the greatest outdoor collections of tropical plants in the world. Rio itself is a magic city huddled between the great mountains that fringe the bay and the sea. Up these mountains funiculars creep to dizzy heights and between two of them a cableway passenger basket swings crazily hundreds of feet in the air. The city is squeezed among these cliff-like mountains or sprawls up the sides of those with a gentle enough slope to permit building.

There are very few such gentle slopes, most of the hills having precipitous cliffs on one or two sides, and Corcovada (the Hunchback) has a sheer drop of 1200 feet on the side facing one of the uncomparably blue bays of Rio's much divided and almost lake-like harbor. Corcovada itself is over 2000 feet high and nature seems to have spent herself in throwing up many other peaks close by which shut in a comparatively small flat area between them and the sea.

It is in this area, and with this quite overpowering setting that the Botanical Garden was placed, first as the Jardim Fluminensis, in 1806, and years later as the Jardim Botanico. On two sides of it the forest creeps down to the very edge of the garden, and from the top of Corcovado, the highest peak in Rio, appears to be pushing the garden into the bay. On the other sides there is that vague air of squalor or cheap buildings quite reminding one of the "Botanic" garages, cigar stands and pharmacies that have spawned freely enough on the edges of the botanical gardens in Brooklyn and New York.

The dominant feature of Rio's garden is a long central path fringed by immense royal palms (*Oreodoxa regia*: I use their catalog nomenclature). Far to the end of this vista is a small Greek Temple erected to the goddess of palms. From the

steps of this "Dea Palmaris" one looks back along the Aléa Barboso Rodrigues, as they have called this palm fringed vista, to the sparkling blue water of the bay. All the other paths in the garden have been named for botanists, mostly South Americans. There is another avenue of these palms at right angles to the main one, and just inside the fence along the main street. This Caribbean plant, much planted elsewhere in Rio, grows so much taller than all other palms in the garden that it dominates everything else. The Emperor Dom João IV

Under the shadow of Corcovada, (The Hunchback) lies the luxuriance of Rio's Botanic Garden. This rocky peak is the highest and steepest of all the mountains in the city of Rio de Janeiro. Elevation 2310 feet.

decreed that all seed from the "mother palm" of this avenue, planted in 1809, should only be used for replacements in the Jardim Botanico. It is today perhaps the most widely used decorative palm in Brazil. It is nowhere wild.

From the street end of the avenue of royal palms there are many other paths radiating fan-fashion, and a large series of smaller ones cutting across these radii. This gives many small, irregular-shaped plots, all numbered, and quite often devoted to a single species, genus or family as their importance may dictate. There is no attempt to put on the ground a scheme of the presumed evolutionary development of plant families,

The allé of Royal Palms in the Botanic Garden at Rio. The trees are natives of the West Indies, but widely planted for ornament in Brazil.

according to the gospel of Engler & Prantl, Bentham & Hooker or the more current gods. Sometimes genera, and often families are widely separated, but as the developed part of the grounds does not exceed fifty acres this is no great hardship.

A good many of these main radii are fringed by one species of plant. There is, for instance, one devoted to the Jack-fruit

(*Artocarpus integrifolia*) just now hung with its great pitted fruits that grow out of the trunk or main branches, never among the twigs. As the larger fruits, are from 40–60 pounds in weight, the jaca as the Brazilians call this native of Eastern Asia, is a striking object. Another such avenue is lined with mango, another with *Chrysalidocarpus lutescens*, another with bamboo. In the bamboo path, very dense and shady, the pistol-like reports of their stems are startling in a high wind, and even in a mild one there is a constant moaning and crunching of stems. When a sudden high wind quickly wrenches loose two or three stems that have been locked together, they give out this noisy protest against such treatment.

Another avenue is lined with andiroba (*Carapa guianensis*) with its solitary pendulous fruits about the shape and size of an orange. It furnishes a widely used timber in Brazil. Fortunately its wood is not so hard or heavy as some Amazonian woods which are little used as they defy ordinary wood-working tools. There is no attempt to have anything like a complete growing collection of Brazilian timber trees, for it would cover hundreds of acres. Besides andiroba, however, there are mature specimens of the jacarandá (*Dalbergia Spruceana*), acapú (*Vouacapoua americana*), cedro (*Cedrela odorata*), angelim (*Pithecolobium racemiflorum*), and of course the pau Brasil (*Caesalpinia echinata*) the tree from which the country was named. Originally the Portuguese call Brazil "Vera Cruz." It gradually lost this name from the great amount of exported dye-wood called Brasil-wood which then gave to Brazil the name "the country of the Brasil-wood," subsequently "the Brasils" and finally its present name and spelling.* There are many other less known timber trees in cultivation and one famous one, the mahogany, which is nowhere native in Brazil.

The great richness of the palm collection is perhaps not surprising considering the immense wealth of palms in the country. The last guide book to the collections lists 160 species in cultivation in 1922. Obviously one cannot attempt here anything like complete notice of even a fraction of such a

* The name originally came from an eastern dye-wood called *bresil*, much imported into Europe by caravan and oriental shipping before the discovery of America. When the Portuguese landed at Bahia in 1500, they began cutting the local tree and quite naturally, and mistakenly, called it bresil.

variety of palms. But a few may be worth noting here for their size, economic importance or for other reasons. The largest palm in Brazil, a native of the drier parts of the country soon bids fair to be one of the most important. It is the babassú (*Orbigyna speciosa*), growing over huge tracts in Maranhão, and of which there are several nearly mature specimens in the Rio Garden. Picture an immense trunk-like caudex 3–4 feet in diameter, crowned at the top by tremendous pinnate leaves from 20–35 feet long. From this great crown hang 10–14 fruit clusters each with 300–400 incredibly hard nuts. In these are the babassú kernels so rich in oil that they are now occupying the attention of soap and margerine makers

Nearly as large and quite as impressive are various palms of the genus *Scheelea*, known collectively as anaja. They have pinnate leaves 20–30 feet long in young almost stemless specimens, while plants fifty feet high have leaves 15–20 feet long. *Scheelea osmantha*, particularly has a huge crown of leaves. Among other pinnate palms are fine specimens of the pupunha (*Guilielma speciosa*), much cultivated in the Amazon for its scarlet and yellow edible fruit; the piassaba (or piassave or even piaçaba) which yields valuable fiber and is the source of the coquilla nut; the extraordinary paxiuba (*Iriartea exorrhiza*) which grows perched up on a great series of *Pandanus*-like prop roots that are covered with tubercular prickles; the maraja (*Bactris maraja*) which has its clustered trunks covered with divaricate, black, flat spines about four inches long and has each leaflet ending in a long, fine herbaceous tip like a dripping tip; the macauba (*Acrocomia intumescens*) with a curious trunk thicker half way up than above or below this swelling and with its fruit clusters half hidden by the crowd of persistent dead leaves that always clothe the trunk; the African oil palm, or dende as they call it at Rio (*Elaeis guineense*), now considerably cultivated in Brazil for its oil; and the urucury (*Attalaea excelsa*), the fruits of which, with a few others, are still used in the coagulation of rubber.

There are not so many fan palms. The most striking is perhaps the miriti (*Mauritia flexuosa*) which, in striking contrast to many Brazilian palms is completely free of spines. It has petioles 12–15 feet long and blades 9–10 feet wide. The fruits and buds are eaten, wine is made from its sap, a kind

of sago from the stem and cordage from the fiber of the leaf-bases. One other palm is worth mention, an unnamed Asiatic species of *Calamus*. An inextricable mass of its climbing stems and long shiny foliage sprawled up a great dead tree, the plant measuring over all perhaps 90 feet high and 70 feet wide. Scores of its slender stems, no thicker than a broomstick had climbed down to the ground and were sprawled over the lawn and all but barricading one of the paths.

Whole sections of the garden are devoted to Bromeliaceae, and hundreds more are epiphytic on palm stems, trees, fence posts, and even in the gutters of adjacent buildings. Few of these were in flower at this season (December) which is at the beginning of Rio's spring. Nor, except for *Cattleya* and *Laelia*, which are everywhere hawked about Rio in gorgeous profusion, are any of the orchid collection in flower. The orchid house consists only of a greenhouse-like frame, screened with chicken wire.

There is, too, a large section devoted to medicinal plants, among them the wholly unknown (in America) Guaraña (*Paullinia cupana*) from the seeds of which a paste and powder have been made for three hundred years. It is widely used in Brazil as a fatigue destroyer and has been investigated by Metchnikoff. Dr. Roquette-Pinto, Director of the National Museum at Rio assures me that its value is unquestioned, and that, like coffee, it leaves no deleterious after affects. It contains about three times the amount of caffeine in coffee, and is used to flavor a nationally used soft drink, *Guaraná*.

The charm of Rio's garden does not depend upon the plants I have mentioned, nor upon hundreds of others, but upon the way they have been used. While scores are grown as individual specimens on the lawn, many are grouped in great masses. There has been effective and judicious use of statues, fountains, water, bridges and grottoes so that quite apart from its scientific value the garden is a much appreciated place of quiet retreat. It is extremely well policed and these are signs in Portuguese. French and a few in English to warn or help visitors.

Of course there is a library and herbarium, the latter, to minimize insect depredations, is kept in hundreds of tin boxes, which is cumbersome but absolutely necessary in a building, with no glass windows or screens and in a country

as rich in insects as Brazil. The very large herbarium at the National Museum at Rio is similarly housed.

There is a pool in one part of the grounds, largely devoted to the Amazonian *Victoria regia*, now one of the best known and most famous water lilies in the world. It needs no comment except to note that here none of its leaves are over four and one half feet in diameter. Dr. Campos-Porto, one of the curators, stated that this was as large as he had ever seen it, so that tales of six or even seven feet in diameter may be stretching dimensions a bit.

Rio de Janeiro, Brazil.
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